

REMARKS

A. Status of the claims

Claims 1, 4, 8, 17 and 18 have been amended and claims 5-6 and 13-16 were previously canceled. Thus, claims 1-4, 7-12 and 17-18 are currently pending and under examination. The minor amendments to claims presented herein are to improve the clarity of the claims and do not alter the scope of the subject claims. No new matter has been added.

B. Claim objections are overcome

The Examiner objected to claim 8 as allegedly referring improperly to trademarks. Accordingly, claim 8 has been amended to recite “wherein the fluorophore is ALEXA FLUOR[®]-647 or ALEXA FLUOR[®]-488” as suggested by the Examiner. Moreover, the claim includes a generic description of the trademarks indicating that they are fluorophores. In view of the foregoing amendment, the objection to claim 8 is overcome.

The Examiner has further objected to claim 17 alleging that it is a duplicate of claim 1. Applicants respectfully disagree. First of all, claim 17 is dependent upon claim 4 which further limits claim 1 (see discussion below) and thus cannot be a duplicate of claim 1. Specifically, claim 4 recites that each unit comprises “two of the same bases as targets for the incorporation of labeled nucleotides.” Claim 17 further states that the two bases of claim 4 are separated by “one or more of a third base” different from the two of claim 4. Thus, claim 17 comprises additional elements relative to claim 1 and is not “substantially duplicative.” In view of the foregoing, the objection to claim 17 has been overcome.

C. Priority claim

The Examiner requested that Applicants furnish a copy of the priority document for the instant application (Great Britain Application No. GB0308852.5 filed on April 16, 2003). Applicants notes that Rule 17.2 PCT states that no designated office shall ask the Applicant to furnish a copy of the priority document, if the priority document has already been submitted. Nonetheless, a copy of the priority document has been ordered and will be forwarded to the Examiner upon receipt.

D. Rejections under 35 U.S.C. §112, second paragraph, are overcome

The Examiner rejected claim 4 (and dependent claim 17) as indefinite as to the meaning of the phrase “same type.” Applicants maintain, however, that the terms “same type” (claim 4) and “different type” (claim 17) refer to the (nucleotide) bases in a unit of a polynucleotide and that this would have been clear to the skilled artisan at the time the application was filed. Moreover, claim 1 unambiguously defines the different bases in step (i) as A, T(U), G and C. Nonetheless, in the interest of expediting prosecution of the case, claims 4 and 17 have been amended to refer to the “same base” (claim 4) or “different base” (claim 17) and to eliminate reference to the term “type.” These amendments do not alter the scope of the claims. Thus, and in view of the foregoing, the rejection of claims 4 and 17 are overcome.

Furthermore, the Examiner has rejected claims 1 and 18 (and claims dependent thereon) as allegedly indefinite under 35 U.S.C. §112, second paragraph. Specifically, it is alleged that the phrase “one of which” lacks proper antecedent basis in the claim and that it is clear whether the phrase refers to one unit or one base. In response, Applicants have amended claims 1 and 18 to recite “one base of which.” In view of this amendment the rejection under 35 U.S.C. §112, second paragraph, has been overcome and Applicants request its removal.

E. Rejections under 35 U.S.C. §103(a), are overcome

Claims 1-4, 7, 9-12, 17 and 18 have been rejected as allegedly obvious under 35 U.S.C. 103(a) over Rosenthal et al. (WO 9321340) in view of Jones et al. (WO 2000/39333), Bowden et al., (H1,903), and Skoinick et al. (EP 0699754). However, for the reasons already of record Applicants maintain that none of the cited references, alone or in combination, teach or suggest a method as recited in independent claims 1 and 18.

Rosenthal et al. describes a conventional DNA sequencing method, whereby a target polynucleotide sequence is determined by the stepwise incorporation of *single nucleotides* which are labeled. Determining the label allows the identification of the incorporated *single* nucleotide to be made. On page 7 of the Office Action the Examiner

points out that the publication discloses the conversion of RNA into DNA and states that “each characteristic is represented by at least one distinct unit on the polynucleotide, the unit comprising at least a single base (see p.1 lines 1-16 and see claim 1 stet for forming a template).” The Examiner implies that the publication envisages that the “characteristics” can be represented by a “unit” on the polynucleotide and this unit can be more than a single base. No teaching in Rosenthal et al., however, has been identified that suggests that “a unit” can be represented by more than single nucleotide. In fact, the passages of Rosenthal et al. cited by the Examiner does not, as asserted in the Action, discuss “a unit” or that any such unit could be represented by “*at least* a single base.” For example, the text from claim 1 of Rosenthal et al. (cited by the Examiner) specifically contemplates extending a primer by “a *single* base.” Thus, the only relevant teaching of Rosenthal et al. regarding nucleic acid sequencing teaches away from the instant claims because it specifically teaches extension by a “*single* base.”

The Examiner appears to imply that the motivation for creating an amplified sequence comes from Jones et al. which discloses the preparation of amplified sequences using “magnifying tags.” The Examiner relies particularly on Figure 7 and states that Figure 7 shows an amplified sequence with a stop signal and that the skilled person would therefore consider using this together with the sequencing procedure in Rosenthal et al. The Examiner’s interpretation of Figure 7 is, however, erroneous because as Figure 7 merely illustrates that an amplified sequence will not be produced unless there is complete accuracy on *hybridization*; a “stop” sequence is neither contemplated nor suggested. Moreover, Skoinick et al. is referred to by the by Examiner as showing that a stop codon may be TAG or GAG, implying that the sequence shown in Figure 7 of Jones et al. is therefore a stop sequence. The teaching of Skoinick et al., however, are not germane to the instant claims. I particular, the “stop sequence” shown in Skoinick et al. relates to a stop codon during translation (*i.e.*, protein synthesis) and does not concern nucleic acid polymerization or sequencing. In contrast, the concept of the stop signal, as used herein, is disclosed on pages 5 and 6 of the present application. Specifically, each unit comprises one or more nucleotides for which a complementary nucleotide is absent in a given reaction mixture, thereby stalling the nucleic acid polymerization. This concept is not disclosed in Jones et al. and would not have been apparent to the skilled person. Thus, even the combination of references cited by

the Examiner fails to disclose or suggest the method as claimed. In view of the foregoing, the instant rejection of claims 2, 4, 12 and 17 as obvious under 35 U.S.C. 103(a) has been overcome and its withdrawal is requested.

Claim 8 has been further rejected as allegedly obvious under 35 U.S.C. 103(a) over Rosenthal et al. in view of Rusinova et al. However, Rusinova et al. does not address the underlying deficiencies in rejection of the independent claims. Thus, the rejection of claim 8 over Rosenthal and Rusinova et al. is considered moot in view of the amendments and arguments detailed above.

F. Conclusion

In view of the above amendment and argument, Applicants believes the pending application is in condition for allowance. The Examiner is invited to contact David Gass at the telephone number provided below with any questions or concerns.

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Respectfully submitted,

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